

High Risk Rural Roads Program Manual

Utah Department of Transportation
Division of Traffic and Safety



April 2011

1. INTRODUCTION

The High Risk Rural Roads Program (HRRRP) was created in 2005 as part of a federal transportation bill, the *Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users* (SAFETEA-LU). Approximately 60% of roadway fatalities occur on rural roads. The purpose of the HRRRP is to achieve a significant reduction in traffic fatalities and incapacitating injuries on rural major or minor collectors and/ or rural local roads.

1.1. Purposes of the HRRRP Manual

The purposes of the HRRRP Manual are to:

- Define the parameters of the HRRRP.
- Define the roles of different parties involved with the HRRRP processes.
- Define and describe HRRRP processes.
- Define and describe HRRRP accountability procedures.

The manual is useful for the following audiences:

- UDOT employees and managers involved with HRRRP processes.
- Consultants that are contracted to perform parts of the HRRRP processes.
- Federal regulators (e.g. the Federal Highway Administration (FHWA)) seeking to determine how UDOT is implementing the HRRRP.

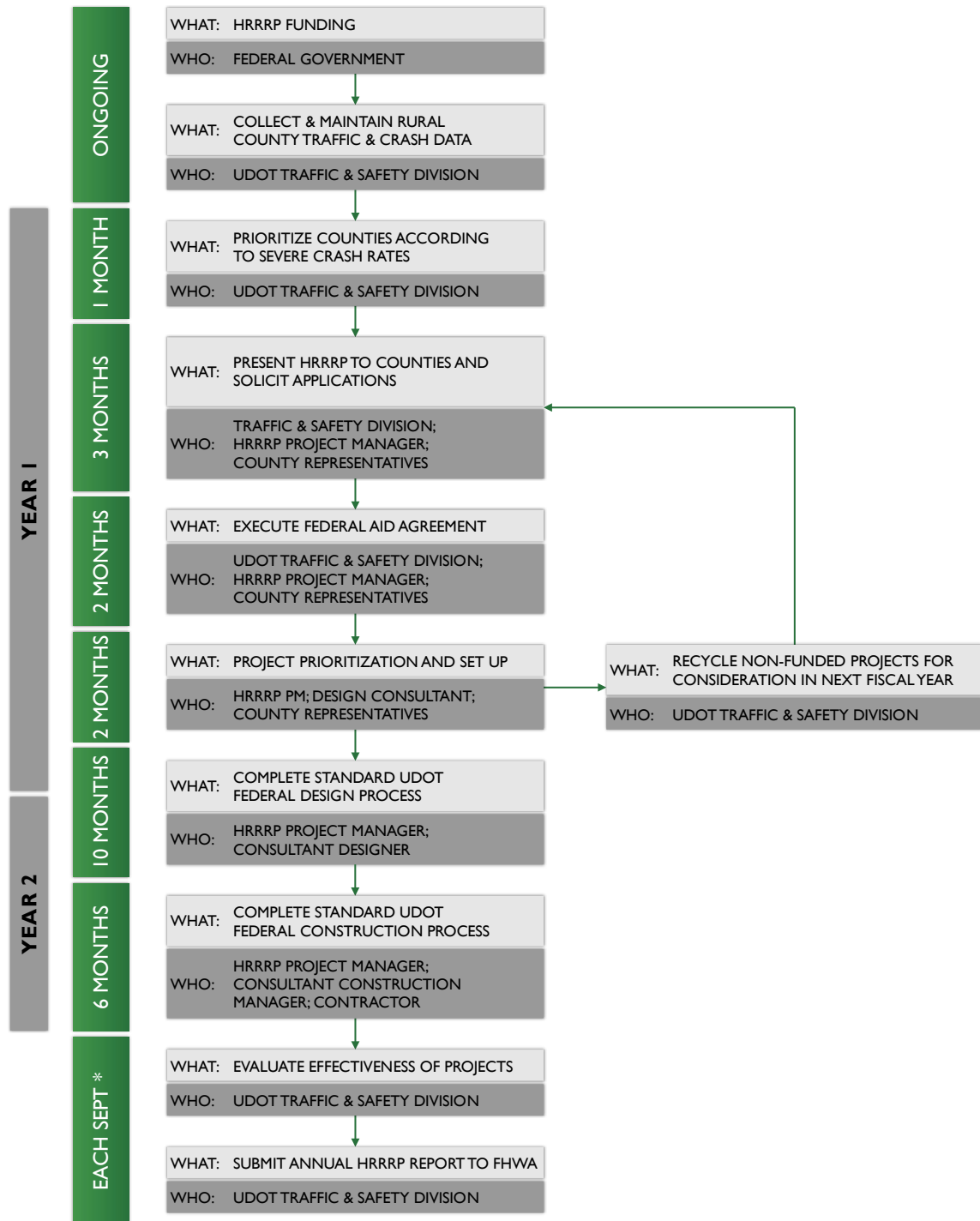
This manual can be downloaded from the UDOT website by going to the following webpage: www.udot.utah.gov/go/hrrrp.

1.2. Manual Outline

This manual is organized into the chapters listed below. Additionally, there is an appendix at the end of the manual. The appendix contains more detailed information about specific elements of the HRRRP that readers may be interested in, but which are not included in the main chapters of the manual.

- Chapter 1: Introduction.
- Chapter 2: Program Oversight & Funding.
- Chapter 3: Partners.
- Chapter 4: HRRRP Project Process.
- Chapter 5: Program Accountability.
- Chapter 6: Appendix.

A flowchart depicting the entire two-year HRRRP project process is shown on the following page.



* These evaluation and reporting steps are relative to projects completed in previous years. Projects are evaluated for 3 years after construction prior to inclusion of results in HRRRP report.

1.3. Acronyms

Many different acronyms are used throughout this manual. The following is a list of these acronyms and a description of what each stands for.

FHWA	Federal Highway Administration
HRRRP	High Risk Rural Roads Program
HSIP ..	Highway Safety Improvement Program
PE	Professional Engineer
PIN	Project Identification Number
PM	Project Manager
PTOE .	Professional Traffic Operations Engineer
RE	Resident Engineer
SAFETEA-LU	<i>Safe, Efficient, Flexible, Efficient, Transportation Equity Act: A Legacy for Users</i>
SHSP ..	Strategic Highway Safety Plan
UDOT	Utah Department of Transportation
USDOT	United States Department of Transportation

2. PROGRAM OVERSIGHT & FUNDING

The HRRRP was created by the 2005 federal transportation bill (SAFETEA-LU). It is a set-aside program that falls within the Highway Safety Improvement Program (HSIP) umbrella. SAFETEA-LU provided \$90 million per year for the HRRRP to the 50 states and the District of Columbia, spread over a four-year period beginning in 2006 and ending in 2009. The U.S. Congress has continued funding the HSIP by extending the existing federal transportation bill since SAFETEA-LU expired.

This chapter discusses the relationship between the federal HRRRP guidelines and the state-level HRRRP implementation. It also provides information about how the \$90 million per year is allocated to the states, as well as how UDOT chooses to allocate its portion of funding to specific programs and projects in Utah.

2.1. Federal Oversight & Funding

The HRRRP is administered at the federal level by the U.S. Department of Transportation's (USDOT) FHWA Office of Safety. FHWA works through each state's department of transportation to achieve implementation of the HRRRP at the state level. As such, UDOT is responsible for implementing the program within Utah. UDOT is accountable to FHWA for making sure that HRRRP funds are spent on appropriate activities. However, FHWA gives UDOT considerable flexibility to determine how to best implement their HRRRP. Funds lapse if they are not obligated by UDOT within four years of appropriation.

The \$90 million per year of HRRRP funds are apportioned to the states by using the same formula that is used for the overall HSIP apportionment, with no state to receive less than 0.5% of the total. Utah's HSIP apportionment is based on its:

- Ratio of lane-miles of federal-aid highways in each state to total lane miles of federal-aid highways in all states.
- Ratio of vehicle-miles traveled on lanes of federal-aid highways in each state to total vehicle-miles traveled on lanes of federal-aid highways in all states.
- Ratio of number of fatalities on the federal-aid system in each state to the number of fatalities on the federal-aid system in all states.

In order to obligate HRRRP funds, each state must fulfill the following requirements:

- Develop and implement a Strategic Highway Safety Plan (SHSP).
- Produce a program of projects or strategies to reduce safety problems.
- Evaluate the SHSP and overall HSIP on a regular basis.
- Submit annual HSIP Report (described in UDOT's HSIP Program Manual).
- Submit annual 5% Report (described in UDOT's HSIP Program Manual).

Only construction and operational improvements on rural roads are eligible for HRRRP funds. Additionally, one of the following two criteria must be met:

- The roadway must have accident rates for fatalities and incapacitating injuries that exceed the statewide average on rural major or minor collectors, or rural local roads.

- The roadway must be likely to experience an increase in traffic volume that is likely to create an accident rate above the statewide average for the respective roadway functional class.

2.2. State Oversight & Funding

UDOT's Safety Programs Engineer oversees HRRRP activities within Utah. This person is responsible for setting the policies and procedures required to fulfill the federal HRRRP mandate. UDOT uses its HRRRP apportionment to pay for the following items:

- Construction and operational improvements on rural roads.
- Fees for consultants that perform specific supporting roles in the HRRRP, such as program management, project management, design, and construction management.

The Safety Programs Engineer also oversees the activities of the HRRRP Project Manager (PM). The HRRRP PM manages the individual construction and operational projects. More detailed information about these two positions is given in Chapter 3. The main source of feedback provided by UDOT to the federal level is a yearly HRRRP report. This report is actually a component of the HSIP report that FHWA requires UDOT to submit each year. A sample HSIP report is included in the appendix (Chapter 6).

The counties are required to provide matching funds to participate in the HRRRP. Each county must pay 6.77% of the total costs associated with the planning, design, and construction of the projects within their jurisdiction.

3. PARTNERS

The HRRRP is a partnership between federal agencies, the UDOT Traffic & Safety Division, counties, consultants, and contractors. Each entity plays an important role in the success of the program. This chapter describes the roles of the major partners.

3.1. FHWA

It is FHWA's responsibility to manage the HRRRP on the federal level. This agency works with each state to achieve implementation of HRRRP projects. FHWA also provides information and guidance about program implementation on their HRRRP website, which is found at safety.fhwa.dot.gov/safetealu/memos/memo051906.cfm. A fact sheet about the program is also available from FHWA. This fact sheet is included in the appendix (Chapter 6).

3.2. UDOT Safety Programs Engineer

The Safety Programs Engineer oversees UDOT's HRRRP implementation. This person is tasked with the following responsibilities:

- Monitoring and allocation of incoming federal HRRRP funds.
- Defining HRRRP processes.
- Setting timetables for the various processes.
- Overseeing the activities of the HRRRP PM.
- Ensuring that federal reporting guidelines are met.

The contact information for the person serving in this position at UDOT at the time of this writing is listed below.

W. Scott Jones, PE, PTOE
Safety Programs Engineer
wsjones@utah.gov
(801) 965-4285

3.3. HRRRP PM

Individual HRRRP projects are managed by the HRRRP PM. This person represents UDOT during the day-to-day activities required to take a project through the entire process. During the initial planning phases, the PM participates in the coordination process with the counties to determine which projects to fund. After specific projects have been chosen, the PM shepherds each project through the standard design, construction, and closeout phases. The contact information for the person serving as the HRRRP PM at the time of this writing is listed below.

Aaron Wall (Consultant)
HRRRP PM
awall@wcecengineers.com
(801) 456-3847

3.4. Counties

UDOT works with counties to identify locations where HRRRP funds can help mitigate safety concerns. The counties act as the project sponsor if projects are chosen for funding in their jurisdiction. They must provide a 6.77% funding match and are also responsible for certifying the right-of-way and utility conditions. Once the HRRRP projects are completed, the counties must maintain the improvements.

3.5. Consultants

UDOT contracts with private engineering consultants to perform the design function of the project process. These consultants work under the direction of the HRRRP PM to complete a set of engineering plans and specifications that meet the objectives and federal requirements of the project and can be advertised for construction.

After the project has been advertised and awarded to a construction contractor, the design consultant may also be expected to provide a qualified engineer to perform the Resident Engineer (RE) function during the construction process. Alternatively, UDOT may choose to utilize another consultant to perform the RE function. The RE observes construction activities on behalf of UDOT, and is responsible for the day-to-day supervision of the construction contractor, as well as the keeping of proper records.

Record keeping is especially critical on HRRRP projects because they involve federal funding. Incomplete records can jeopardize the federal funding and lead to delays during the project closeout process. The RE coordinates with the HRRRP PM whenever questions arise during the construction process.

3.6. Construction Contractors

All HRRRP construction projects are bid through UDOT and constructed by private contractors that are chosen through the standard UDOT low bid process. They work under the direction of the RE to construct each project according to the approved plans and specifications. Contractors are responsible to submit proper documentation of the materials and quantities used to the RE.

4. HRRRP PROJECT PROCESS

This chapter outlines the steps of the HRRRP project process that UDOT uses to take a project from the initial planning stages through to construction closeout. The following sections echo the flowchart shown previously in Chapter 1.

4.1. Analysis of Traffic & Crash Data

The first step in the planning process is the collection and analysis of crash and traffic data. This step is very important to the goal of applying HRRRP funds to the locations most in need of safety improvements. Currently, UDOT does not have the ability to reference the exact location of crashes that occur on non-state system roadways, which is where HRRRP funds must be applied. However, UDOT is working to upgrade its crash database so that it will be capable of location-referencing non-state roads.

In the meantime, UDOT's Traffic & Safety Division uses two different methods to identify roadways with above average serious and fatal injury crashes. The first method involves using aggregate crash statistics. Counties with above average total rural road crashes are approached by UDOT systematically (in order of highest accident rates to lowest) and invited to participate in the HRRRP. The second method involves looking at crash reports to determine which individual roads throughout the state have the highest numbers of serious and fatal injury crashes. The county selection step takes approximately one month.

4.2. Presentation and Application

After UDOT has identified a focus county, a meeting is scheduled between UDOT representatives and the county to introduce the HRRRP. This meeting typically takes place within 2 months of the time when the county is identified. The meeting consists of a 20-minute presentation to the county commissioners that includes discussion of the following items:

- Program purpose.
- Overview of past projects.
- Funding and matching requirements.
- Application and award process.

Following this presentation, the county commissioners have the chance to ask questions about the presentation and the HRRRP in general. If the county determines that it would like to partner with UDOT to fund HRRRP projects within their jurisdiction, it submits an application within one month of the presentation.

4.3. Federal-Aid Agreement

A contract must be signed between UDOT and each county to provide a mechanism for UDOT to require the county to provide the necessary matching funds and maintain facilities constructed with HRRRP money. This contract is called a Federal Aid Agreement. The county works with the HRRRP PM to complete this agreement within two months of the time that UDOT accepts the county's application.

4.4. Project Prioritization and Set Up

While the Federal Aid Agreement is being developed and signed, the HRRRP PM works with the appropriate people at UDOT to set up the projects in UDOT's project management system. Project numbers and project identification numbers (PINs) are assigned to each project. Following this step, the PM assigns the projects to a design consultant under the direction of the HRRRP PM.

After the project is set up, the HRRRP PM and design consultant work with the county representatives to identify candidate locations for safety improvements and decide which locations to complete. Locations that are not selected in any given year may be recycled for consideration in subsequent years when more funding becomes available. These set up and prioritization tasks should take approximately two months.

4.5. Design, Advertisement, and Construction

After projects have been set up in UDOT's system, the HRRRP PM works with the design consultant, region review and construction oversight personnel, and contractor to shepherd the projects through the standard federal environmental, design, and construction processes. The following list shows timeline milestones for when specific elements of these processes should be complete (time begins after projects have been set up and a design consultant has been assigned):

- 5 months – complete environmental document and initial design.
- 1 month – hold PS&E design review meeting.
- 2 months – finalize design plans and advertise project for construction.
- 2 months – award construction contract and mobilize contractor.
- 3 months – construct project.
- 3 months – close out project.

5. PROGRAM EVALUATION

A key component of successfully managing any program is the periodic evaluation and reporting of progress toward pre-determined goals. As mentioned in Chapter 1, the federal SAFETEA-LU legislation states that the goal of the HRRRP is to achieve a significant reduction in traffic fatalities and incapacitating injuries on rural major or minor collectors and/or rural local roads. This section describes the ways in which UDOT evaluates and reports progress toward this goal.

5.1. Three-Year Crash Histories

As mentioned in Section 4.1, UDOT currently does not have the ability to reference crashes to particular locations off of the state roadway system. This limits the possibility of comparing three-year pre- and post-construction crash histories, which is UDOT's typical practice for analyzing the effectiveness of safety improvements. In future years when non-state system crashes can be location-referenced, UDOT will use this standard method to assess project effectiveness.

5.2. Yearly HRRRP Report

FHWA requires each state to devote a section of their yearly HSIP Report to a description of their HRRRP. The HRRRP portion of the report should be structured into the three sections listed below, which are described further in the following sub-sections:

- Basic program implementation information.
- Methodology used to identify HRRRP projects.
- Overall HRRRP effectiveness.

More detailed guidance about the HRRRP Report requirements can be found on FHWA's website at safety.fhwa.dot.gov/safetealu/guides/guide051509.cfm#a3d. A sample HSIP Report from a previous year is included in the appendix (Chapter 6). The HRRRP portion of this report is found in Section V beginning on page 10.

5.2.1 Basic Program Implementation

This section of the report should address the amount of HRRRP funds available and the amount of that funding that has been obligated. The report should also contain a description of the projects initiated with these funds, including the following information:

- Improvement category.
- Project output (e.g. miles of rumble strips).
- Project cost.
- Relationship to Utah's SHSP.

5.2.2 Methodology Used to Identify HRRRP Projects

This section of the report should describe methods and data used to identify HRRRP project locations. The description should include a description of the crash and volume data used to calculate the statewide and location specific fatality and incapacitating injury crash rates for each applicable roadway classification. As long as UDOT does not have the ability to reference locations of all of the non-state roadway crashes, this section should also clearly describe the following:

- The data-based methods used to select HRRRP projects.
- The steps being taken to make location referencing possible.

5.2.3 Overall HRRRP Effectiveness

UDOT is required to present and describe figures showing the general highway safety trends related to rural roads. For example, this could include the number of fatalities and serious injury crashes occurring on roadways functionally classified as rural major, rural minor collector, and rural local roads in Utah for the past five years. Once UDOT is able to reference crash locations on these types of roads, an analysis showing the effectiveness of particular projects based on pre- and post-construction statistics will be possible.

6. APPENDIX

The appendix contains more detailed information about specific elements of the HRRRP that readers may be interested in, but which do not merit inclusion in the previous portions of the manual. Click on one of the links below to open a document containing that particular item.

- [Fiscal Year HSIP Report \(Sample\)](#)
- [HRRRP Application Form](#)
- [HRRRP Fact Sheet](#)